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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,705	05/13/2002	Kari Kalliojarvi	915-414	1802

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EXAMINER	
PEREZ, JULIO R	

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
12/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/019,705	KALLIOJARVI, KARI	
	Examiner	Art Unit	
	Julio R. Perez	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-11,13-15,19,20 and 22-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-11,13-15,19,20 and 22-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/16/07 has been entered.

Claim Objections

2. Claim 1 is objected to because of the following informalities: On line 4, delete "a", and insert -- the --, after the term "wherein". Appropriate correction is required.

3. Claim 6 is objected to because of the following informalities: On line 1, examiner interprets that claim 6 is more likely to depend on claim 1 and not on claim 3, as claim 3 has been cancelled. Appropriate correction is required.

4. Claim 22 is objected to because of the following informalities: On line 1, examiner interprets that claim 22 is more likely to depend on claim 15 and not on claim 21, as claim 21 has been cancelled. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 5-8, 10, 11, 13-15,19, 20, 22-31, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wylie et al. (5,974,329) in view of MacDonald (5,732,354).

Regarding claims 1,15, 23, Wylie discloses a method (and arrangement and a location server) measuring at least one feature of a signal received from the transmitting station at the receiving station, said feature being such that it can be used for determination of the distance between the transmitting station and the receiving station (col. 4, lines 7-10, 39-65, the signal strength from the mobile station may be measured in relation to its position within the different coverage areas; furthermore, the range measurements correspond to power signal measurements); and computing the distance [i.e., range measurement] between the transmitting station and the receiving station using said measured signal feature [i.e., signal strength power] (col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31), determining the current geographical location of one of the transmitting stations (col. 3, lines 3-5).

What Wylie does not specifically disclose is that the method is implemented in the system to store and determine a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of the base station, wherein the

characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels; computing distances between the mobile station and the at least two mobile stations.

MacDonald teaches propagation loss model based on Hata model that includes propagation path slope within different propagation environment schemes, which in turn describe the propagation path, line of sight characteristics, of the terrain, thus, determining factors (levels) for different type of terrain and building density (col. 6, lines 48-67; col. 7, lines 1-59). McDonald further calculating a location estimate of the mobile telephone with receiving a list of signal strengths received by the telephone from cell sites, i.e., base stations within a serving coverage area and hence calculating the distances between the mobile and a plurality of cell sites (Figure 8; col. 6, lines 39-67, - col. 7, lines 1-15).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Wylie to include MacDonald as it is known to implement measurements systems with coefficient factors (levels) or correction factors and determine distances among base stations and the mobile station to provide a more accurate location of the mobile station.

Regarding claim 5, the combination discloses at least one feature comprises at least travel time of the signal between the mobile and base station (Wylie, col. 4, lines 7-10).

Regarding claim 6, the combination discloses at least one feature comprises at least signal travel time differences between the mobile station and base station (Wylie, col. 4, lines 7-10).

Regarding claim 7, the combination discloses at least one feature comprises at least strength of the signal transmitted between the mobile and base station (Wylie, col. 4, lines 7-10, 39-65).

Regarding claim 8, the combination discloses at least one feature comprises the quality of the signal transmitted between the mobile and base station (Wylie, col. 4, lines 7-10, 39-65).

Regarding claims 10, 19, the combination discloses defining propagation environments for several stations; and classifying the stations in different radio propagation environment classes; wherein the characteristic parameter is based on the class of the station (MacDonald, col. 7, lines 30-40).

Regarding claim 11, the combination discloses the characteristic parameter is stored and processed in a location service node implemented in the mobile telecommunications system (MacDonald, col. 7, lines 51-67).

Regarding claim 13, the combination discloses the determination of the characteristic parameter comprises steps of: determining the current geographical location of said mobile station in way that is external to the telecommunications system; and inputting the results of the determination to the telecommunications system (Wylie, col. 3, lines 5-7).

Regarding claim 14, the combination discloses comprising use of a satellite based positioning system said determining of the current geographical location of the mobile station (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31).

Regarding claim 20, the combination discloses wherein the feature of the signal is based on one or several of the following: travel time of the signal between the transmitting and receiving stations, signal travel time difference between the transmitting and receiving stations, the strength of the received signal, the quality of the received signal (Wylie, col. 4, lines 7-10).

Regarding claim 22, the combination discloses the mobile station comprising a sector antenna (Wylie, Figure1A-1B).

Regarding claim 24, Wylie discloses an arrangement comprising: a first station (col. 4, lines 7-10, 39-65; Figures 1A-1B); a second station for communicating by radio with the first station (col. 4, lines 7-10, 39-65; Figures 1A-1B); means for defining the current geographical location of the first station by means of a source of location information that is external to the telecommunications system (col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31; a GPS system provides location information to mobile and base stations as evidenced by the fact that GPS units, (and within base station transceivers), in a mobile system, are located within mobile stations for providing and facilitating their geographical positions as well as transmitting such positions to respective base stations); determining means for determining a feature of a radio signal received by one of the stations from the other

stations (col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67- col. 6, lines 1-10, 26-31).

What Wylie does not specifically disclose is that the method is implemented in the system to store and determine a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of the base station, wherein the characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels; computing distances between the mobile station and the at least two mobile stations.

MacDonald teaches propagation loss model based on Hata model that includes propagation path slope within different propagation environment schemes, which in turn describe the propagation path, line of sight characteristics, of the terrain, thus, determining factors (levels) for different type of terrain and building density (col. 6, lines 48-67; col. 7, lines 1-59). McDonald further calculating a location estimate of the mobile telephone with receiving a list of signal strengths received by the telephone from cell sites, i.e., base stations within a serving coverage area and hence calculating the distances between the mobile and a plurality of cell sites (Figure 8; col. 6, lines 39-67, - col. 7, lines 1-15).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Wylie to include MacDonald as it is known to implement measurements systems with coefficient factors (levels) or correction factors and determine distances among base stations and the mobile station to provide a more accurate location of the mobile station.

Regarding claim 25, the combination discloses comprising means for receiving signals from a satellite based positioning system (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31).

Regarding claim 26, the combination discloses comprising means for determining if an update of the data concerning the radio propagation environment is required (MacDonald, col. 7, lines 5-40).

Regarding claim 27, the combination discloses wherein the first station comprises a portable device (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 7-10, 39-67).

Regarding claims 28, 30,, the combination discloses the signal is transmitted from the at least two base stations to the mobile station and the signal is measured at the mobile station (MacDonald, Figure 8, col. 6, lines 39-51).

Regarding claims 29, 31, the combination discloses the signal is transmitted from the at least two base stations to the mobile station and the signal is measured at the at least two base stations (MacDonald, Figure 8, col. 6, lines 39-51, base stations provider means for signal measurements).

7. Claim 9, is rejected under 35 U.S.C. 103(a) as being unpatentable over Wylie in view of MacDonald and Hilsenrath et al., 6,026,304 (hereinafter Hilsenrath).

Regarding claim 9, Wylie in view of Sheynblat and MacDonald does not explicitly disclose, comprising use of a weighted least square method for the determination of distances between the receiving and transmitting stations, wherein the used weighting matrix is the inverse of an error covariance matrix.

However, in a similar field of endeavor, Hilsenrath discloses a method and apparatus in a wireless communication system that accurately determines the transmitter's location (col. 6, lines 6-34-col. 7, lines 9-35-col. 8, lines 15-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination with the teachings of Hilsenrath for the purpose of having an entity that would efficiently and accurately locate the mobile station in a coverage area.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio R. Perez whose telephone number is (571) 272-7846. The examiner can normally be reached on 10:30 - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William G. Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Julio R Perez
Examiner
Art Unit 2617

11/28/07

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